RHODE ISLAND

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF WATER RESOURCES

Groundwater and Wetlands Protection Program

Guidance For Preparation of Subwatershed Maps

The following list serves as a guidance sheet for the preparation of existing (pre-project) condition and proposed (post-project) condition subwatershed maps.

This guidance sheet is intended to allow design engineers to prepare the subwatershed maps, which accompany submitted drainage analyses in a manner, which allows for clear and expeditious review of the drainage analyses. Subwatershed maps, which include the items listed, will typically allow the reviewing staff to clearly observe the connection between the site conditions (existing and proposed), which affect the production of runoff, and the submitted analyses.

Subwatershed maps prepared in accordance with the following guidelines need to accompany all engineering drainage analysis calculations for the determination of existing (pre-project) condition and proposed (post-project) condition peak runoff discharge rates.

(1) Separate subwatershed maps need to be submitted for existing (pre-project) conditions and proposed (post-project) conditions.

(2) Provide one set of subwatershed maps to accompany each drainage analysis copy. (Two sets minimum)

(3) If possible, try to limit the size of the sheets to 24"x36". However, if it is necessary to use a larger sheet due to the size of the watershed, this is acceptable. Because the mapping is considered to be a component of the drainage analysis, and not part of the submitted plans, the 24"x36" size limitation may be deviated from where appropriate.

(4) Subwatershed area boundaries or limits need to be complete. If a subwatershed includes upgradient areas which extend beyond the subject property, provide adequate subwatershed map of off-site areas so as to depict the entire subwatershed.

(5) Provide a suitable scale for existing and proposed condition subwatershed maps, such as 1"=40', 1"=50', or 1"=100'. Scales, which provide greater detail, are acceptable. If the subwatershed is very large, the on-site map scale must be no smaller than 1"=100'. Smaller scale mapping (such as the 1"=2000' USGS topography map scale or the 1"=1320' scale of the Soil Survey of Rhode Island maps) may be done for off-site areas.

(6) The existing and proposed condition subwatershed maps need to compare the same overall area. Common analysis points are also needed for comparison of pre-project and post-project runoff discharge.

* Note – Be sure to account for any post-project subwatershed areas which do not drain to a stormwater management facility.

(7) Provide sufficient off-site detail, either on the subwatershed maps or on accompanying maps of appropriate scale (such as USGS quad map), to provide the downstream destination of watercourses which leave the site. (For example, two streams leaving the site may converge to feed the same downstream river, or may diverge to flow to separate watersheds.)

(8) Provide existing (pre-project) condition and proposed (post-project) condition topography. Do not illustrate proposed condition topography on the existing condition subwatershed map. Provide at least a 2' contour interval for the on-site topography. Topography for upgradient, off-site areas may utilize a 10' interval (i.e., USGS topo mapping).

(9) Indicate the property lines of the subject site and the project limits on all submitted subwatershed maps.

(10) Indicate the limits of wetland areas on-site, and show approximate limits off-site wetlands. (For example, soil maps and/or USGS quad information can be used for off-site areas.)

(11) Indicate the designation of watercourses and water bodies in terms of applicable Freshwater Wetland Program terminology (i.e. rivers, streams, ponds, areas subject to storm flowage (ASSF's)). Include the names of watercourses and water bodies, where applicable.

(12) The subwatershed maps need to map and indicate the various cover types in each subwatershed (see Urban Hydrology For Small Watersheds, 1986 (TR-55 Manual), Table 2.2), which are used to calculate the weighted curve number for each subwatershed. Map and label the cover types (example, woods, brush, grass, impervious, etc.), along with the pertinent hydrologic soil groups (A, B, C, or D), and applicable hydrologic conditions (i.e., good, fair, poor) within each subarea. Number each existing and proposed condition subarea.

The maps need to provide sufficient detail so as to be able to clearly support the calculations of weighted curve numbers supplied in the drainage analysis.

(13) Indicate the time of concentration flow path of each subwatershed. (See 1986 TR-55 Manual, Chapter 3.)

(14) Indicate all existing and proposed stormwater conveyance features (swales, pipes, ditches, culverts, etc.) and stormwater management facilities and/or practices used for detention and/or water quality management purposes. Clearly indicate which areas these items serve.